REMARKS

Claims 1, 2, 10, 12, and 16 are pending in this application. All of the pending claims are rejected. Claims 1 and 10 are currently amended. Reconsideration and further examination are respectfully requested.

The present invention helps solve the N^2-1 scalability problem caused by applying unique point-to-point security relationships for each unique pair of communicating devices. More particularly, the present invention helps solve this problem by **applying the same security association to unrelated communications between non-overlapping pairs of devices.** Ordinarily, applying a common security association for non-group communications would be considered an unacceptable security risk. Point-to-point associations were developed to avoid exposing such communications to other devices. However, the inventors recognized that the risk may be acceptable where the devices of the non-overlapping pairs are affiliated in some manner unrelated to the communication, e.g., members of the same VPN. In particular, the increased risk may be acceptable in view of the resulting enhanced scalability. Consequently, the inventors propose that a common group security association can be applied to unrelated (non-group) communications by trusted ingress and egress devices at the edge of a backbone. The claims are currently amended in an attempt to even more clearly express this feature.

Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,701,437 (Hoke) in view of US 7,072,346 (Hama) in view of US 7,092,397 (Chandran). The Examiner cites Chandran at column 2, lines 1-8, as teaching transforming packets according to a group security association. The cited passage states:

> then typically forwarded to another network, such as the Internet,
> via an edge router, for example. In the example above, **each ISP
> can be assigned a unique MPLS-VPN tag that identifies traffic
> belong [sic] to that ISP. The MPLS-VPN tag can then be used**

as a basis to apply security/QoS or any other defined policies on
the traffic. (emphasis added)

Because each ISP is assigned a unique MPLS-VPN tag that is used as the basis for applying

security, the passage fails to meet the burden of teaching use of the same security association for

underlined communications between non-overlapping pairs of stations as currently recited in the

claims. In particular, even if the Examiner interprets Chandran as teaching communication from

a given ISP to multiple destinations with the same security association, the pairs would be

overlapping because the ISP is part of every pair. Note that claims 1 and 10 now recite

transforming, at the ingress point of the backbone, both the first packet for transmission from the

first station to the second station, and the second packet for transmission from the third station to

the fourth station, according to the group security association associated with the group identifier

wherein the first packet is associated with a first point-to-point communication, the second

packet is associated with a second point-to-point communication, and the first communication is

unrelated to the second communication except that the first, second, third and fourth stations

belong to the group of stations. In other words, the same security association is used for non-

overlapping source/destination pairs. Withdrawal of the rejections of claims 1 and 10 is

therefore requested.

It should be noted for the record that the interpretation of Chandran discussed above is

unsupported by the reference, either explicitly or implicitly. It is discussed because it is one

possible interpretation of the rejection. However, as indicated at column 1, lines 14-39,

Chandran is describing operation of a household cable modem that supports communications

through different ISPs. As described at column 1, lines 56-65, the MPLS/VPN tag is applied

before the CMTS, i.e., by the member device. Therefore, the passage cited by the Examiner

teaches that the cable modem and CMTS support different point-to-point security associations

for each ISP. It does not teach that the same security association is applied to unrelated

communications between both a first ISP/first subscriber pair and a second ISP/second

subscriber pair. As a consequence, the cited combination fails to solve the N^2-1 scalability

problem. Further, such an interpretation would pose an unreasonable security risk, and is

therefore an unreasonable interpretation. Applying group security to non-group communications

as recited in the claims is counter-intuitive because it increases risk relative to widely accepted

point-to-point associations which exist for non-group secure communications. However, the

inventors have recognized that a modest exposure to additional risk may be acceptable in

exchange for mitigation of the N^2-1 scalability problem. In order to consider the claims as a

whole the Examiner must appreciate the problem as well as the recited solution. It is not

appropriate to cite elements from various passages and references out of context and state that

the resulting collection of features would result in the invention without some nexus in the prior

art. The source of a problem is part of the "subject matter as a whole" which should always be

considered in determining the obviousness of an invention under 35 U.S.C. § 103. *In re

Sponnoble*, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969).

Claims 2, 12, 13 and 16 are dependent claims. If an independent claim is nonobvious

under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d

1071, 5 USPQ2d 1596 (Fed. Cir. 1988). The dependent claims are therefore allowable for the

same reasons stated above with regard to their respective base claims.

For these reasons, and in view of the above amendments, this application is now

considered to be in condition for allowance and such action is earnestly solicited. Should there

remain unresolved issues that require adverse action, it is respectfully requested that the

Examiner telephone Applicants' Attorney at the number listed below so that such issues may be

resolved as expeditiously as possible.

Respectfully Submitted,

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